AMENDMENTS TO THE CLAIMS

Please cancel claims 4 and 13 without prejudice or disclaimer of the subject matter therein.

Please substitute the following claims for the pending claims with the same numbers respectively:

Claim 1 (Currently amended): A signal processing device comprising:

first to Nth sub signal processing sections each of which is given (N × t + i)th frame signals (i and t are integers, N is a natural number, and 0 ≤ i < N) of a first digital signal framed for each predetermined time interval and each of which completes a first process within a period (N × T) (T is a real number); ~~and~~

a main signal processing section which converts a signal processed in ~~said~~ a (i + 1)th sub signal processing section into a second digital signal by completing a second process within a period T;

wherein the second process contains a process employing information generated in a past frame time; and

the first process excludes the information generated in the past frame time.

Claim 2 (Currently amended): The signal processing device ~~of~~ according to claim 1, wherein said signal processing device further comprising:

a distribution section inputting said first digital signal to one of said first to Nth sub signal processing sections for each frame interval one after another; and

a selection section selectively outputting one of ~~the after process~~ a processed signal outputted from said first to Nth sub signal processing sections for each frame interval one after another to input the processed signal to said main signal processing section.

Claim 3 (Currently amended): The signal processing device ~~of~~ according to claim 1, wherein said signal processing device further comprising:

a first memory storing said frame signal of said first digital signal one after another;

a second memory storing said frame signal of said second digital signal one after another; and

a distribution and selection section which sends the $(N \times t + i)$th frame signal (i and t are integers, and $0 \leq i < N$) obtained from said main signal processing section to said $(i + 1)$th sub signal processing section, receives the signal <u>on</u> which said first process has been performed for the $(N \times (t - 1) + i)$th frame signal from the $(i + 1)$th sub signal processing section, and outputs said signal to said main signal processing section; and

wherein said first to Nth sub signal processing sections are connected to said distribution and selection section, performs the first process for said frame signal received from said distribution and selection section, and sends the after-process signal to said distribution and selection section; and

wherein said main signal processing section is connected to said first and second memories, picks out said frame signal from said first memory for each time interval T one after another to output said frame signal to said distribution and selection section, and performs said second process for said signal

received from said distribution and selection section to store

this after-process signal in said second memory.

Claim 4 (Canceled):

Claim 5 (Currently amended): The signal processing device
~~of~~ according to claim ~~4~~ 1, wherein

said first digital signal is a compressed and encoded signal

of an audio signal;

said second digital signal is a PCM signal of an audio

signal;

said first process contains a process picking out

information from the compressed and encoded signal to convert the

information into information of a frequency spectrum; and

said second process contains a process converting said

information of said frequency spectrum into said PCM signal of

time base.

Claim 6 (Currently amended): The signal processing device
~~of~~ according to claim 5, wherein

said first process contains a decoding process of a variable

length code; and

said second process contains an inverse MDCT process.

Claim 7 (Currently amended): The signal processing device of according to claim 5, wherein

said first process contains an inverse quantizing process inversely quantizing said compressed and encoded signal, and

said second process contains a sub-band synthesis filter bank process.

Claim 8 (Currently amended): The signal processing device of according to claim 1, wherein

a division is made for said first process and said second process so that the calculation period necessary for said first process is N times the a calculation period necessary for said second process.

Claim 9 (Currently amended): A signal processing method converting a first digital signal into a second digital signal by employing first to Nth sub signal processing sections and a main signal processing section, said method comprising the following steps of:

completing ~~said~~ a first process within a period (N × T) (T

is a real number) in ~~said respective~~ respectively the first to

Nth sub signal processing sections for (N × t + i)th frame

signals (i and t are integers, N is a natural number, and 0 ≤ i <

N) of the first digital signal framed for each predetermined

interval given by the first to Nth sub signal processing sections

one after another~~,~~ , and the first process excluding information

generated in a past frame time; and

converting a signal processed in ~~said~~ a (i + 1)th sub signal

processing section into the second digital signal by completing

~~said~~ a second process within a ~~time~~ period T in ~~said~~ the main

signal processing section , and the second process using the

information generated in the past frame time.

Claim 10 (Currently amended): A signal processing device

comprising:

a main signal processing section which is given (N × t +

i)th frame signals (i and t are integers, N is a natural number,

and 0 ≤ i < N) of a first digital signal framed for each

predetermined time interval and which completes a first process

within a period T (T is a real number); ~~and~~

first to Nth sub signal processing sections each of which is given ~~the~~ a (i + 1)th frame signal after the <u>first digital</u> signal had been processed in said main signal processing section and converts ~~said~~ a frame signal into a second digital signal by completing ~~the~~ a second process within a period (N x T)<u>;</u>

<u>wherein said first process excludes information generated in a past frame time; and</u>

<u>said second process using the information generated in the past frame time</u>.

Claim 11 (Currently amended): The signal processing device ~~of~~ <u>according to</u> claim 10, wherein said signal processing device further comprising:

a distribution section inputting said ~~digital~~ frame signal outputted from said main signal processing section into said first to Nth sub signal processing sections for each frame interval one after another; and

a selection section selectively outputting one of the after-process signal outputted from said first to Nth sub signal processing sections for each frame interval one after another.

Claim 12 (Currently amended): The signal processing device
~~of~~ according to claim 10, wherein said signal processing device
further comprising:

a first memory storing said frame signal of said first
digital signal one after another;

a second memory storing said frame signal of said second
digital signal one after another; and

a distribution and selection section which sends a signal
performed said first process and obtained from said main signal
processing section to said $(i + 1)$th sub signal processing
section, receives a signal which said second process has been
performed for the $(N \times (t - 1) + i)$th frame signal from said $(i +$
$1)$th sub signal processing section, and outputs said signal to
said main signal processing section; and

wherein said main signal processing section is connected to
said first and second memories, picks out a frame signal from
said first memory for each time interval T one after another,
performs said first process for said $(N \times t + i)$th frame signal
to output said frame signal to said distribution and selection
section, and stores this after-process signal received from said
distribution and selection section in said second memory; and

wherein said first to Nth sub signal processing sections

which ~~performs~~ perform said second process for said frame signal

received from said distribution and selection section, and sends

the after-process signal to said distribution and selection

section.

Claim 13 (Canceled):

Claim 14 (Currently amended): The signal processing device

~~of~~ according to claim ~~13~~ 10, wherein

said first digital signal is a PCM signal of an audio

signal;

said second digital signal is a compressed and encoded

signal of an audio signal;

said first process contains a process converting said PCM

signal into information of a frequency spectrum; and

said second process contains a process encoding and

compressing said information of said frequency spectrum.

Claim 15 (Currently amended): The signal processing device

~~of~~ according to claim 14, wherein

said first process contains a MDCT process; and

said second process contains a ~~Hoffman~~ Huffman coding

process.

Claim 16 (Currently amended): The signal processing device

~~of~~ according to claim 14, wherein

said first process contains a sub-band analysis filter bank

process; and

said second process contains a quantizing process.

Claim 17 (Currently amended): The signal processing device

~~of~~ according to claim 10, wherein

a division is made for said first process and said second

process so that ~~the~~ a calculation period necessary for said

second process is N times ~~the~~ a calculation period necessary for

said first process.

Claim 18 (Currently amended): A signal processing method

converting a first digital signal into a second digital signal by

employing first to Nth sub signal processing sections and a main

signal processing section, said method comprising the ~~following~~

steps of:

completing ~~said~~ a first process within a period T (T is a

real number) in said main signal processing section for (N × t +

i)th frame signals (i and t are integers, N is a natural number,

and 0 ≤ i < N) of the first digital signal framed for each

predetermined time interval, and the first process excluding

information generated in a past frame time; and

converting ~~said~~ a (N + 1)th frame signal processed by said

main signal processing section and given to said first to Nth sub

signal processing ~~section~~ sections one after another, into said

second digital signal by completing ~~said~~ a second process within

a period (N × T) in ~~said~~ the first to Nth sub signal processing

sections and the second process employing the information

generated in the past frame time.

Claim 19 (Currently amended): A portable type apparatus

comprising:

an audio signal input section for inputting an encoded audio

signal;

a signal processing device for decoding said encoded audio

signal, said signal processing device comprising:

first to Nth sub signal processing sections each of which is given (N x t + i)th frame signals (i and t are integers, N is a natural number, and 0 ≤ i < N) of a first digital signal framed for each predetermined time interval and each of which completes a first process within a period (N x T) (T is a real number); and

a main signal processing section which converts a signal processed in ~~said~~ a (i + 1)th sub signal processing section into a second digital signal by completing a second process within a period T; and

an audio signal output section for outputting ~~said~~ a decoded audio signal.

Claim 20 (Currently amended): A portable type apparatus comprising:

an audio signal input section for inputting an audio signal;

a signal processing device for encoding said audio signal, said signal processing device comprising:

first to Nth sub signal processing sections each of which is given (N x t + i)th frame signals (i and t are integers, N is a natural number, and 0 ≤ i < N) of a first digital signal framed for each predetermined time

interval and each of which completes a first process within a period (N x T) (T is a real number);

a main signal processing section which converts a signal processed in ~~said~~ a (i + 1)th sub signal processing section into a second digital signal by completing a second process within a period T;

a distribution section inputting said first digital signal to one of said first to Nth sub signal processing sections for each frame interval one after another; and

a selection section selectively outputting one of the after-process signal outputted from said first to Nth sub signal processing sections for each frame interval one after another to input the signal to said main signal processing section; and

a memory for holding said encoded audio signal.